Outcome Measures of Effectiveness (MOEs) and their Measure During a Post Implementation Review (PIR)

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Scope and Objective

- This presentation deals with two elements of performance and results-based management of IT and National Security Systems (NSS)
  - Prescribing IT outcomes performance measures; defined as measures of effectiveness, MOEs
  - Measuring the MOEs during a Post-Implementation Review
- The objective is to answer who, what, why and when for MOEs and their measure
- Noel Dickover will introduce you to additional resources of MOE/PIR information at the IT-Community of Interest: http://acc.dau.mil/cca

MOEs Defined

- MOEs are independent of any solution and do not specify performance or criteria.
- The MOE is the criterion by which solutions will be judged
- MOEs are a measure of operational success that must be closely related to the objective of the mission or operation being evaluated. For example, the number of enemy submarines sunk or enemy tanks destroyed may be satisfactory MOEs if the objective is to destroy such weapons systems.
- A meaningful MOE must be quantifiable and a measure to what degree the real objective is achieved.

PIR Defined

- A PIR is an analysis of an investment or acquired system, operating in its intended environment, using data collected from various sources to answer the question:

Did we get what we needed, and if not what to do about it?

- A PIR is a measurement of the outcome measures of effectiveness (MOEs) assigned to a materiel solution by the capability/mission owner

Statutory Requirements

Sec 5123 of the Clinger-Cohen Act:
(Performance and Results-based Management)

- **Establish goals for improving Agency efficiency and effectiveness**
- **Provide annual status of goals to Congress**
- **Prescribe IT/NSS outcomes performance measures (MOEs)**
- **Benchmark against comparable processes and organizations**
- **Measure how well the outcomes support programs of the Agency (PIR)**
- **Meet fundamental criteria:**
  - **Core/priority mission functions for performance by Government**
  - **No alternative private sector or government source (e-GOV)**
- **Conduct BPR/Change management before investing in IT/NSS**
- **Ensure information assurance**

+ Annual Appropriations Legislation implemented by DoD CIO memoranda

Regulatory Requirements

- JCIDS Manual assigns the respective FCBs and Domains responsibility for articulating capability attributes, metrics and measures
- DODI 5000.2
  - Table E3.T1 cites information required for the Full-Rate Production decision, including the Post-Deployment Performance Review citing GPRA and 40USC 11313 (CCA)
  - Table E4.T1 “establish outcome-based performance measures linked to strategic goals”.
- OMB Circular A-130 in section under “Evaluation”
  - Conduct post-implementation reviews of IT to validate estimated benefits and costs
- OMB Circular A-11 Exhibit 300, Table 1C requires submission of:
  - Performance Goals and Measures. Strategic goal(s) supported; Existing baseline; Planned and actual improvements and performance metrics

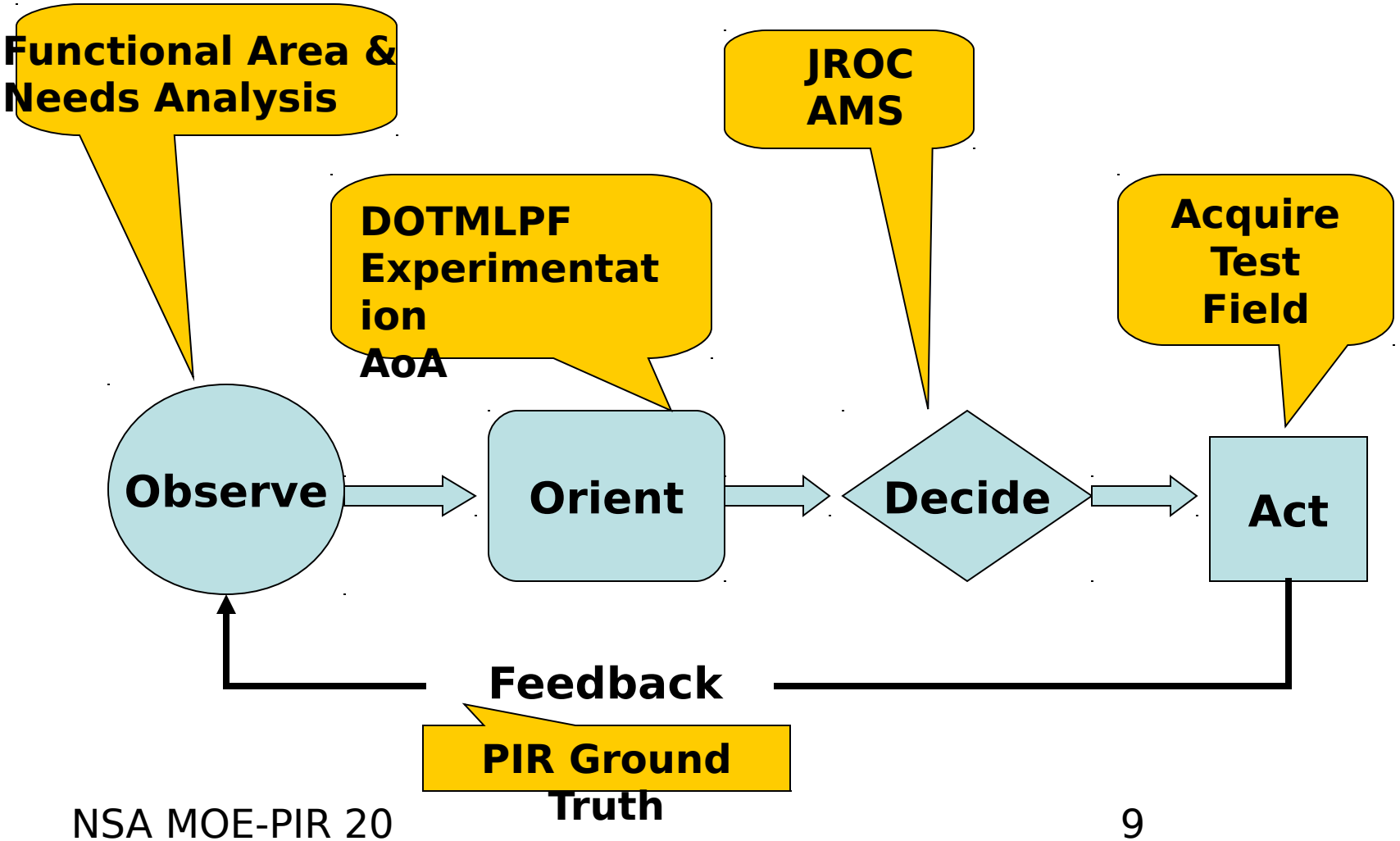
Measurement Area Drivers

	CCA & E-GOV	GPRA	Balanced Scorecard	Baldrige Quality Criteria	Six Sigma
Mission & Business Results					
Customer Results					
Processes & Activities					
Human Capital					
Technology					

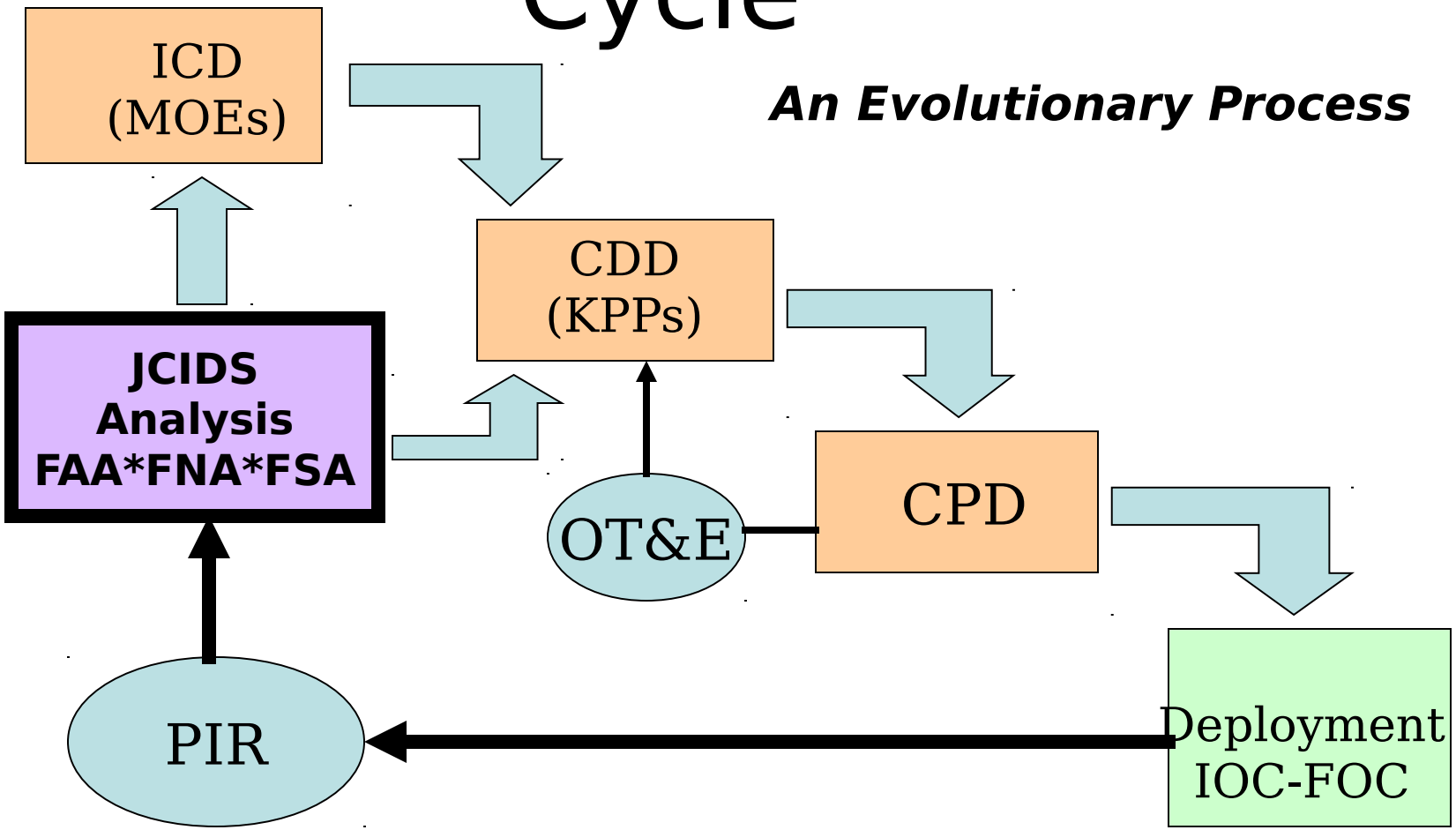
MOEs and PIR in the Life-cycle

- The following slides provide three views of MOEs and the PIR
  - **As an OODA Loop**
  - **In the investment life-cycle**
  - **In the JCIDS life-cycle**

OODA Loop in IT Investments

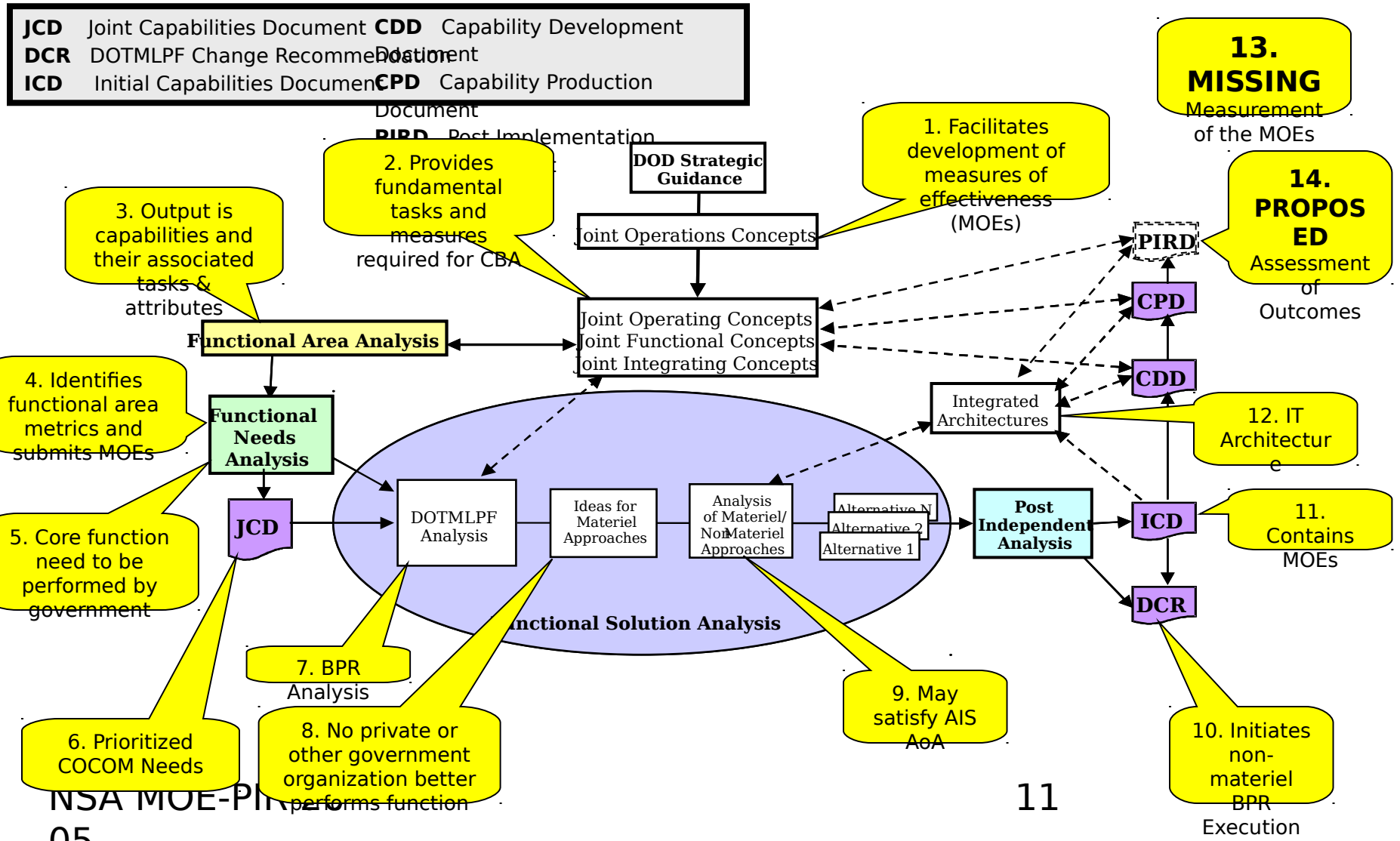


IT/NSS Investment Life Cycle



MOE/PIR in the JCIDS Process

Existing and Proposed JCIDS Processes for Satisfying CCA



Developing the MOEs

- MOEs are derived from Functional Concept capability attributes, measures and metrics
  - Describe the outcome expectations of the Functional Sponsor
    - New capability
    - Improving existing capability
- CIO provides leadership in Net-centric FCB and supports development of related MOEs

Top Level Capabilities and Metric Summary

From Functional Concept Capabilities <> Attributes Matrix and Service Capabilities Documents

Determined by Team

From Functional Concept Attribute Measures <> Metric Matrices

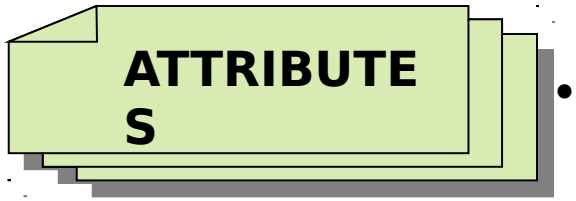
Capability	Attributes	Measures	Metrics	Current (Baseline) Value	Targeted Threshold Value	Targeted Objective Value
Capability #1	Attribute #1	Measures...	Metric 1		Value for Metric 1	Value for Metric 1
	Attribute #2	Measures...	Metri		Value for M1 Value for M3	Value for M1 Value for M3
Capability #2	Attribute #2	Measures...	Metric ...		Value for Metrics...	Value for Metrics ...
	Attribute #4	Measures...	Metric ...		Value for Metrics...	Value for Metrics ...
	Attribute #1	Measures...	Metric ...			Value for Metrics ...
						Value

Qualitative / Quantified

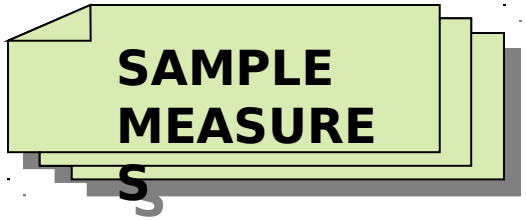
Joint C2 Example – From FC

v1.0

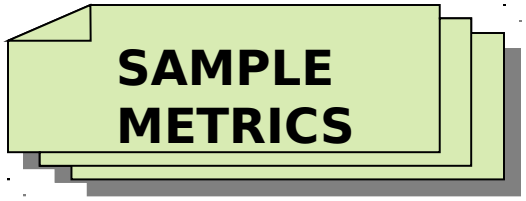
- Monitor & collect data
- Understand the situation



- Superior Decision Making



- Timeliness of Decision



- Extent to which currency of a decision is appropriate to the mission

Joint C2 Example – Values TBD

- METRIC

Extent to which currency of a decision is appropriate to the mission

- CURRENT (BASELINE) VALUE
  - Data from past assessments
    - May need to conduct an assessment
  - Likely to be quantification of a qualitative questionnaire
    - Respondents consider currency of present process to be appropriate only 40% of the time
- TARGETED THRESHOLD & OBJECTIVE VALUE
  - Needs consensus and chop by Sponsor and FCB Chair

Other MOE Examples

- Customer Satisfaction:
  - 80% of respondents assess category ABC as above threshold
- Economy:
  - Return on Investment greater than 300%
- Efficiency:
  - Maintenance manpower reduction of 50%
- Effectiveness:
  - Reduce IED events by 50%
  - Increase available aircraft employment to 80%
  - Decrease uncertainty of XYZ assessments by 30 %
  - Enable rapid detection and classification of short burst signals
  - Reduce manned aircraft requirements by 50%

NOT MOEs

- Programmatic measures
  - Cost, Schedule
- Solution dependent KPPs
  - Solution technical parameters
  - System outputs

Note

Some MOEs are also KPPs and are tested during OT&E

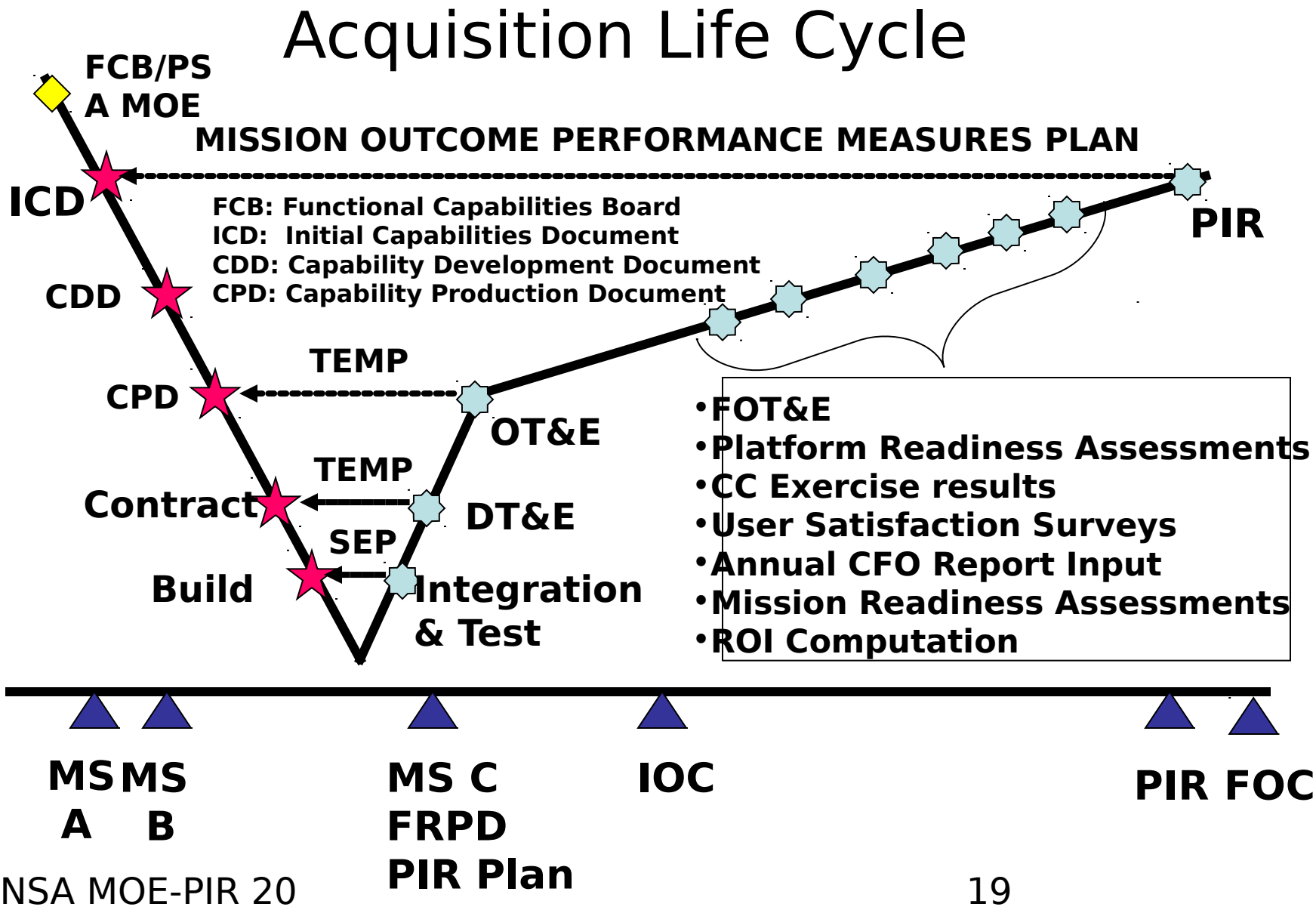
Planning and Implementing the PIR

FUNCTIONAL SPONSOR

- Start planning during MOE development
  - Affordability of proposed measures
- Gather as-is data for comparison
- Evolve plan with final at FRPD
- Schedule the PIR
  - Make maximum use of scheduled events
- Assemble and Charter the PIR Team
  - Functional, Technical, CIO, Oversight
- Conduct the PIR
- Conduct the Analysis
- Prepare and Sign Report
  - Provide Recommendations for future increments

Program Manager ⇨ Support Functional Sponsor

Post Implementation Review (PIR) in the



Common Problems with PIR

- Multiple organizations with no common measurement standards
- Lack of documentation in ICD and/or business case
- Lack of Functional Sponsor ownership of PIR
- Sensitivities of participating organizations
- Doing a PIR without using the results

Guidance and Practitioner's Resources

- Ch 7 of DAG
- References and Examples in IT-CoP
- One-to-many discussions on IT-CoP-L
- More during Noel's Presentation

Questions?

Acronyms

- AMS: Acquisition Management System
- AoA: Analysis of Alternatives
- BPR: Business Process Reengineering
- C2: Command & Control
- CCA: Clinger-Cohen Act of 1996, formerly the Information Technology Management Reform Act of 1996
- CDD: Capability Development Document
- CIO: Chief Information Officer
- CPD: Capability Production Cocument
- DCR: DOTMLPF Change Request
- DOTMLPF: doctrine, organization. Training, materiel, leadership and education, personnel, facilities
- E-Gov: E-Government Act of 2002
- FAA: Functional Area Analysis
- FCB: Functional Control Board
- FNA: Functional Needs Analysis
- FOC: Full Operational Capability
- FSA: Functional Solution Analysis
- GPRA: Government Performance and Results Act 1993
- ICD: Initial Capabilities Document
- IOC: Initial Operational Capability
- IT: Information Technology
- JCD: Joint Capabilities Document
- JCIDS: Joint Capability Integration and Development System
- JROC: Joint Requirements Oversight Council
- KPP: Key Performance Parameter
- MOE: Measure of Effectiveness
- NSS: National Security System
- OMB: Office of Management and Budget
- OODA: Observe, Orient, Decide, Act
- OT&E: Operational Test & Evaluation
- PIR: Post Implementation Review